Auto-page on Demand

Do it now!

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Introduction

The Local Station software current supports auto-page application invocation. Associated with each display page is a set of auto-page parameters consisting of a "next" time, a "delta" time and a time-out value. The time parameters are in units of minutes. The "next" time, expressed as yr-mo-da-hr-mn contains the time of the next (automatic) invocation of that page. The "delta" time, expressed as hr-mn, will be added to the current time to produce a new "next" time when the application terminates.

The time-out can optionally force the program to terminate after a period of time up to four minutes. If the time-out period is less than 17 seconds, the current display contents are printed out the serial port upon termination. This allows hard copy records to be produced from programs like the parameter page which have no automatic actions.

When the program does terminate, the page that was "interrupted" is recalled for execution. It won't return to its original state, but it will at least reappear. In the case that another page is also due to be called up, then it will be invoked first before recalling the "interrupted" page.

Demand page invocation

For handling the measurement of the D0 detector argon temperatures and purity monitor, it is desired for the host to be able to request the measurements to be made at times which only the host can determine. The test beam work utilized the afore-mentioned auto-page mechanism to typically make the measurements every ten minutes on a time-of-day basis. For the final experiment, we need to do this upon demand of the host.

An easy approach to providing this is to utilize the present auto-page mechanism to do the hard part. All we need to do is to set in the current time as the "next" time for the given page upon receipt of a special setting from the host. The auto-page mechanism will take over and arrange to run the program as requested. The data of the "setting" can be used to set the time-out value. (See below.) While this may appear to usurp the auto-page ability for the given page, it is probably good that it does. If it didn't, we would need to define what happens when the auto-page time comes up while the page's program is executing under host control. This scheme means that programs which are run upon demand will not be run via periodic auto-page.

Parameter passing

It may be useful to pass parameters to the application that is invoked. When this is done with the usual applications, it is done via the display screen. And often the program retains some of such values in its page-private memory. For each display page, there is a small (currently 120 bytes) private "file" available for keeping such values between invocations of that page. The parameter page, for example, uses this area to keep its current list of channels. In this way, a single copy of the parameter page program can serve many display pages using a different set of channels in each.

This page-private memory can be used to house a record structure that can be used for communications between the host and the application program. The host has access to this same block of memory using listype #33. Parameters can be written there, even

before the application is invoked upon demand, Status and progress information that is generated by the application can be monitored by the host. A key could be stored there to verify whether the intended application was running. Error conditions can be reported to the host as well. There is no restriction imposed upon the layout of this structure by the Local Station software; it is organized by arrangement between the application program and the host program.

The host program could check the page's display title to verify whether the page is installed with the expected program. Or, it could merely assume that the page that is used for the program is fixed. It may as well be fixed, as the page number is the ident that is stored in the database anyway; it doesn't need to be known to the host program but only to the database.

Time-out values

The significance of the 2-byte time-out values used in the invocation setting are as follows:

255	Forever
16–254	1–239 seconds (value-15)
1–15	1–15 cycles (.06 – 1 second @ 15Hz)
0	Inactive